

**REMARKS**

Applicant has reviewed the Office Action dated January 7, 2003. Claims 1, 3, 8-9, 13-14, 22, 28-30, 33 and 53 are amended, claims 60-61 are canceled, and claims 63-65 are added. As a result, claims 1, 3-31, 33-59 and 62-65 are now pending in this application.

**§102 Rejection of the Claims**

In the Office Action, claims 1, 3 – 31 and 33 – 61 were rejected under 35 USC § 102(b) as being anticipated by Gillberg et al. (U.S. Patent No. 5,755,736).

With respect to independent claim 1, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method for providing pacing therapy to a heart that includes controlling pacing of the heart in a first manner for an identified first one of the at least two different types of supraventricular tachycardia and in a second manner for an identified second one of the at least two different types of supraventricular tachycardia, as recited in the claim. The supraventricular tachycardia recited in the claim have regular rapid supraventricular heart rates. Figure 11 of the Gillberg reference appears to illustrate that, if one of AFLUTTER 606, AFIB 608, SINUS TACH 610, AVNRT 612 or NSR 614 is detected, then the process continues to determine if there is a sustained AF 622 or a sustained AT 624. It appears that an AF therapy is delivered 632 if there is a sustained AF (an irregular heart rate), and therapy is delivered 634 if there is a sustained AT (a type of regular rapid supraventricular heart rate). Thus, Applicant respectfully asserts that the cited portions of the Gillberg et al. reference do not show controlling pacing of the heart in a first manner for an identified first one of the at least two different types of supraventricular tachycardia and in a second manner for an identified second one of the at least two different types of supraventricular tachycardia.

With respect to dependent claim 4, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method that includes establishing criteria for distinguishing between fast atrial flutter at a first high rate and a second atrial flutter at a second lower rate, as recited in the claim. With respect to dependent claims 9-10, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method that

includes providing atrial antitachycardia pacing to the heart for the identified first one of the at least two different types of supraventricular tachycardia or a second type of pacing control (ventricular pacing) for the identified first one of the at least two different types of supraventricular tachycardia, as recited in the claim. With respect to dependent claim 13, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method that includes trending a plurality of atrial discrimination algorithm output values and controlling timing of the pacing of the heart in response to the trend of the atrial discrimination algorithm output values, as recited in the claim. Claims 3, 5-8 and 11-12 depend on claim 1 and are believed to be patentable at least for the reasons provided with respect to claim 1.

With respect to independent claim 14, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method for providing pacing therapy to a heart where pacing of the heart is controlled to provide atrial antitachycardia pacing to the heart if a slower rate supraventricular tachycardia is identified as occurring and providing a second type of pacing control if a fast atrial flutter is identified as occurring, as recited in the claim. The recited supraventricular tachycardia have regular rapid supraventricular heart rates. With respect to dependent claim 15, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method that includes establishing criteria for distinguishing between fast atrial flutter at a first high rate and a second atrial flutter at a second lower rate, as recited in the claim. Claims 16-21 depend on claim 14 and are believed to be patentable at least for the reasons provided with respect to claim 14.

With respect to independent claim 22, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method for distinguishing between different types of rapid regular supraventricular tachycardia where it is determined that an atrial rate is above a predetermined atrial tracking rate, and upon determining that the atrial rate is above the predetermined atrial tracking rate, the atrial discrimination algorithm is applied to the atrial activity signal, as recited in the claim. When ventricular pacing tracks an atrial rate, the atrial rate and ventricular rate have a one-to-one relationship. However, when the atrial rate is above

the predetermined atrial tracking rate, the relationship of the atrial rate to the ventricular rate is greater than a one-to-one relationship. Applicant respectfully asserts that the Gillberg et al. reference does not show supraventricular discrimination when the relationship of the atrial rate to the ventricular rate is greater than a one-to-one relationship. Applicant notes that both sinus tachycardia and AVNRT are characterized by an atrial rate and ventricular rate that have a one-to-one relationship. Dependent claims 23-29 depend on claim 22 and are believed to be patentable at least for the reasons provided with respect to claim 22.

With respect to independent claim 30, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a cardiac pacing device that includes a processor for distinguishing at least two different types of regular rapid heart rates, and for controlling the pacer to provide a first pacing therapy to the heart for a first type of regular supraventricular tachycardia and a second pacing therapy to the heart for a second type of regular supraventricular tachycardia, as recited in the claim. The Gillberg et al. reference appears to provide an AT therapy 634 in response to a sustained AT 624 (Figure 11), and does not appear to provide different pacing therapies in response to the individual SVT rejection rules 606, 608, 610, 612, 614. Applicant notes that pacing therapy would not be provided for a sinus tachycardia or a normal sinus rhythm.

With respect to dependent claim 32, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, discrimination criteria for distinguishing between fast atrial flutter at a first high rate and a second atrial flutter at a second lower rate, as recited in the claim. With respect to dependent claims 39-41, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a processor to control the pacer to provide atrial antitachycardia pacing to the heart or a second type of pacing (ventricular pacing (VRR, Rate Smoothing)) depending on the type of supraventricular tachycardia identified, as recited in the claims. With respect to dependent claim 43, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, means for trending atrial discrimination algorithm output values and for controlling the pacer to control timing of the

pacing in response to the trend, as recited in the claim. Claims 31, 33, 35-38 and 42 depend on claim 30 are believed to be patentable at least for the reasons provided with respect to claim 30.

With respect to independent claim 44, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a processor for distinguishing between fast atrial flutter and a slower rate supraventricular tachycardia and for controlling the pacer to provide atrial antitachycardia pacing to the heart if a slower rate supraventricular tachycardia is identified as occurring and to provide a second type of pacing if a fast atrial flutter is identified as occurring, as recited in the claim. Claims 45-52 depend on claim 44 are believed to be patentable at least for the reasons provided with respect to claim 44.

With respect to independent claim 53, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a dual chamber bradycardia pacer for providing pacing pulses to ventricles of the heart at a pacing rate based on a detected atrial rate up to a maximum atrial tracking rate, and a processor for pacing the pacer, and applying the atrial detection algorithm to the atrial activity signal only if the detected atrial rate exceeds the maximum atrial tracking rate, as recited in the claim. Claims 54-59 depend on claim 53 are believed to be patentable at least for the reasons provided with respect to claim 53.

In the Office Action, claim 62 was rejected under 35 USC § 102(b) as being anticipated by Gillberg et al. (U.S. Patent No. 5,755,736) for the reasons of record and the discussion in paragraph 2 of this action. Applicant respectfully traverses. Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a processor for distinguishing between fast atrial flutter and a slower rate supraventricular tachycardia to identify whether a fast atrial flutter or a slower rate supraventricular tachycardia is occurring ,and for controlling the pacer to provide atrial antitachycardia pacing to the heart for an identified slower rate supraventricular tachycardia and to provide a second type of pacing for an identified fast atrial flutter, as recited in the claim.

**AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116 – EXPEDITED PROCEDURE**

Serial Number: 09/712600

Filing Date: November 14, 2000

Title: Method and Apparatus for Using Atrial Discrimination Algorithms to Determine Optimal Pacing Therapy and Therapy Timing

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Dkt: 279.492US1

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6960 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Box RCE, Commissioner of Patents, Washington, D.C. 20231, on this 7 day of April, 2003

GREG HANSON

Name



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